

## **Selling Hydrogen Fuel in a Pre-Commercial Environment within California**

**General Statements.** In California, the Department of Food and Agriculture (Department) weights and measures law and regulations exist to promote fairness between buyer and seller. Measuring devices must be evaluated and officially approved before commercial use is permitted. Tolerances are established so that neither buyer nor the seller suffers economic harm. Devices are inspected frequently to ensure they are accurate and are operating correctly.

The general principle of weights and measures requirements is to provide accurate measurement in commercial transactions that can be relied on as fair by both buyer and seller. This means taking the guesswork out of determining quantities of fuel sold. Estimating the quantity of fuel sold is not permitted.

Agreeing on a fixed price to fuel a particular vehicle is not restricted by weights and measures regulations. This price must not vary by using such things as miles driven, tank pressure or fuel gauge reading, thereby estimating fuel used. The price can be adjusted however, with agreement between buyer and seller, for such variables as overhead and maintenance costs and personnel costs.

### **Some Frequently Asked Questions**

**I have a dispenser that measures hydrogen by the kilogram dispensed. Can I charge the customer for fuel by the kilogram and round down to the nearest kilogram?**

The general principle of device tolerances and accuracy is that neither the buyer nor the seller is economically harmed. Tolerances are established to set the legal range of inaccuracy that a device may operate within and still be officially approved for commercial use. For this reason, rounding and setting dispensers in a predominant direction to over- or under-register is also not allowed

**My hydrogen station has accurate hydrogen pressure gauges, can I charge the customer by delta pressure – for example they pull in with a tank pressure of say 2000 psi, then they fill up and the pressure now reads 9400 psi. And, I'd like to charge them \$10/1000 psi increase or approximately \$70 for that fill. Is this OK?**

No, this is not an acceptable method by which to sell hydrogen fuel. The U.S. National Hydrogen Working Group has determined, in the national hydrogen regulations that the method of sale for gaseous hydrogen as a motor fuel will be in kilograms.

**Can I work with each customer and estimate based on their EPA label and how far they drive how many kilograms they will use, then charge them a flat rate based on my approximate cost per kilogram?**

No, the question itself uses the term estimate. So many variables affect the actual consumption of fuel; driving habits, tire pressures, environmental factors, wind, terrain that using the EPA label values and an odometer of unknown accuracy to determine fuel consumption is essentially guesswork; the very thing weights and measures requirements seek to mitigate.

*See the 2<sup>nd</sup> paragraph in the General Statement above.*

**I'd like to charge customers a flat rate for a hydrogen fill. Since a 700 bar fill takes more equipment, energy and hydrogen to fill, I'd like to charge 40% more for a 700 bar fill than a 350 bar fill. Is this OK to do?**

**I have a customer who drives a Honda Clarity and another who drives a Toyota FCHV. They both fill at my 350 bar dispenser. Can I charge the Toyota owner more for a fill since that vehicle has a larger capacity fuel tank?**

You may do this if you reach an agreed fixed price for each customer.

*See the 3<sup>rd</sup> paragraph in the General Statement above.*

**When am I going to be able to charge my customer by the kilogram?**

As soon as a hydrogen fuel dispenser is evaluated and approved for commercial use. To date, no such device has been evaluated.

**How much does it cost to get my station equipment tested and certified so I can sell hydrogen by the kilogram?**

There is no answer for this at the moment. It depends on the test method and test equipment determined to be the most suitable in terms of accuracy, time to test and overall cost. Different test methods and test equipment will shortly be examined to make this determination. The cost will be reflected in the registration fee for the device charged by each county. As a comparison, the fee for a liquefied petroleum gas (LPG) meter is limited to a maximum of \$175 a year per device plus a location fee of \$100.

**How do I convince or illustrate to the customer that my hydrogen is pure enough for their FCV?**

California has specifications for hydrogen fuel quality for use in FCV. Hydrogen being sold must those specifications. There are no laws requiring any statement of hydrogen fuel quality at time of sale, unless a purity declaration is part of the identity of the fuel. It is the responsibility of the seller to ensure that the fuel meets quality specifications. If the seller wishes to demonstrate that quality they may have their fuel tested by a private laboratory.

There are no commercial sales of hydrogen for FCV's at this time. The Department does not intend to enforce its current hydrogen quality specifications until this happens.

**I run a station where hydrogen is generated by an electrolyser. I have a very good idea on how much electricity /how much it costs me to generate/compress/dispense a kilogram of hydrogen. Can I take vehicle tank size, multiply that by my cost, add O&M, personnel costs and a small profit and charge that amount to the customer?**

Yes, you may do this if you reach an agreed fixed price for each customer.  
*See the 3<sup>rd</sup> paragraph in the General Statement above.*

**Can I look at the customer's fuel gauge and say " that looks like it has 1/4 tank left in a 7 kg tank", estimate that they need 5 kilograms and then charge them what it cost me for 5 kilograms + a profit?**

No, you are estimating the quantity of fuel, which is not permitted.  
*See the 2<sup>nd</sup> paragraph in the General Statement above.*

**How do I submit my dispenser for type evaluation? How long will it take? How much will it cost?**

For more information go to:  
<http://www.cdfa.ca.gov/dms/programs/ctep/ctep.html>

**What can I do to support CDFA in allowing the sale of hydrogen as a retail motor fuel?**

Partner with the Department to promote the commercial sale of gaseous hydrogen fuel. Allow access to stations and fueling equipment for testing and evaluation. Provide up to date information on available equipment and products.

**When Can I Use my Hydrogen Dispenser to Sell Fuel?**

Before any measuring device, e.g., a fuel dispenser, can be sold or used commercially in California, it must first be evaluated and approved by the Department. It is unlawful for a device to be placed into commercial use unless it is type approved by the Department.

**What is a Commercial Measuring Device?**

Commercial measuring equipment are measuring devices used commercially or employed in establishing the quantity or measurement of quantities for distribution or consumption, purchased, offered, or submitted for sale, hire, or award, or in computing any basic charge or payment for services rendered on the basis of measure. It also applies to any accessory attached to or used in connection with a commercial measuring device when such accessory is so designed that its operation affects the accuracy of the device.

Business and Professions Code Section, 12500 (e) defines “Commercial purposes” as the determination of the weight, measure, or count of any commodity or thing which is sold on the basis of weight, measure, or count; or the determination of the weight, measure, or count of any commodity or thing upon which determination a charge for service is based.

### **What is Type Approval?**

This is the determination by the Department that, after examination and evaluation of the design and performance of a weighing or measuring device, it complies with all applicable weights and measures requirements and can be used commercially. During evaluation, the device is subjected to thorough testing that includes its maximum capacities and all features specified by the manufacturer. For more information go to:

<http://www.cdfa.ca.gov/dms/programs/ctep/ctep.html>

### **What is a One-Of-A-Kind Device?**

A one-of-a-kind device is a device for which the individual installation determines measurement characteristics so uniquely as to make it individually distinctive from any other. A type-approved device, which has been modified to effectively make it unique, is also considered one-of-a-kind.

Note: Successful completion of type approval for a one-of-a-kind device is valid for that location only.

### **What is a Developmental Engine Fuel Variance?**

It is a variance from current fuel specifications, which may be granted by the Department for developmental or experimental fuels for which established chemical and performance fuel standards have not been determined by a standards developing organization, e.g., ASTM International or SAE International. Variances are granted to provide for the development of information under controlled conditions. Developmental engine fuel may only be distributed or sold to fleet-type centrally fueled vehicle and equipment users. Possession of a variance does not negate other requirements, terms, and conditions that are contained in statutes and regulations adopted by the Department pertaining to engine fuels and fuel dispensers. Additional information about hydrogen and variances can be found at:

<http://www.cdfa.ca.gov/dms/hydrogenfuel/hydrogenfuel.html>